

25.

$$y = 2\sqrt{3-4x}$$

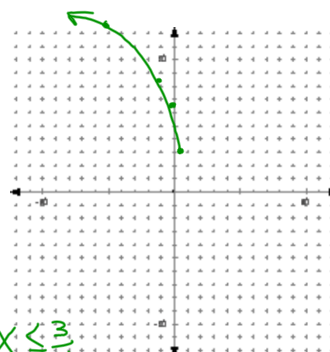
$$3-4x \geq 0$$

$$3 \geq 4x$$

$$\frac{3}{4} \geq x$$

$$x \leq \frac{3}{4}$$

+ 3	
x	y
$\frac{3}{4}$	3
0	6.4
-1	8.3
-5	12.6



$$D: x \leq \frac{3}{4}$$

$$R: y \geq 3$$

Test tomorrow

7.1 Polynomial Functions

- degree odd/even
- leading coeff. +/-
- end behavior
- # real zeros

7.2 Graphs

- use calc to find zeros, rel. max, and rel. min

7.3 Quadratic Techniques

- u-substitution
- factoring

sum/diff of cubes

7.4 Factor and Remainder Thms

- synthetic substitution
- k problems

7.5 Roots and Zeros

- Fund. thm. of algebra
- complex conjugates
- write equation, given the roots

-use sum/product

$$(x^2 - (\text{sum})x + \text{product})$$

$$\begin{pmatrix} 2i & 3i \\ -2i & -3i \end{pmatrix} 5$$

7.6 Rational Zero thm.

- p's and q's
- double roots
- constant = 0

$$p \in \{ \text{constant} \}$$

$$q \in \{ \text{leading coeff} \}$$

7.7 Operations on Functions

- $+$ $-$ \times \div
- Composition

$$[f + g]$$

$$[f \circ g](x) \text{ etc...}$$

7.8 Inverse Functions

- Find the inverse
- Show it is the inverse
- Graph the inverse

$$[f \circ g](x) = x$$

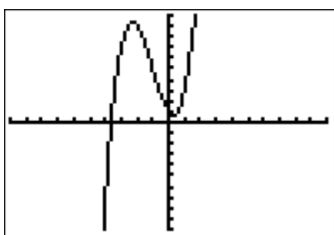
$$[g \circ f](x) = x$$

Grab a white board and marker and eraser.

7.9 Square Root Functions and Inequalities

- graph (table of values)
- domain and range

Is the function

a. odd or even oddb. as $x \rightarrow \infty$, $f(x) \rightarrow +\infty$ as $x \rightarrow -\infty$, $f(x) \rightarrow -\infty$ c. Number of real zeros. 1

On your calculator, graph

$$f(x) = x^3 + 3x^2 - 2x + 1$$

Then find:

relative max 9.303relative min .697

Solve using quadratic techniques:

$$x^{\frac{2}{3}} - 9x^{\frac{1}{3}} + 20 = 0$$

$$\left(x^{\frac{1}{3}}\right)^3 = 5^3 \quad \left(x^{\frac{1}{3}}\right)^3 = (4)^3$$

$$x = 125 \quad x = 64$$

List all of the possible rational roots and solve.

$$\{\pm 2, 3, 3\}$$

$$x^4 - 6x^3 + 13x^2 - 24x + 36 = 0$$

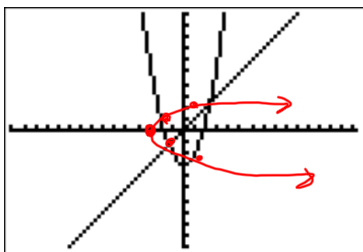
$$\frac{p}{q} \in \{\pm 1, \pm 2, \pm 3, \pm 4, \pm 6, \pm 9, \pm 12, \pm 18, \pm 36\}$$

Sketch the inverse:

The equation is

$$y = x^2 - 3$$

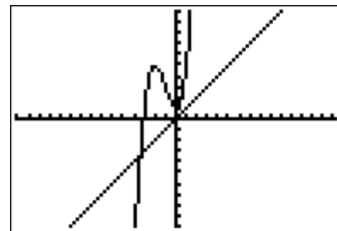
0, -3	}	-3, 0
1, -2		-2, 1
-1, -2		-2, -1
2, 1		1, 2
-2, 1		



Sketch the inverse:

The equation is

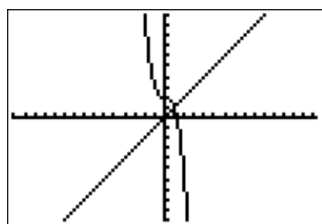
$$y = x^3 + 3x^2 + 1$$



Sketch the inverse:

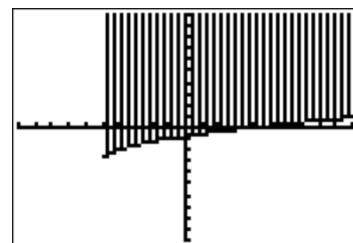
The equation is

$$y = -x^3 + 2$$



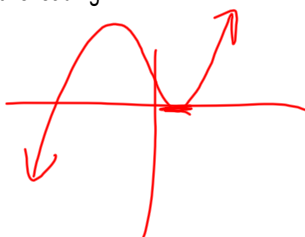
Graph (make a table of values)

$$y > \sqrt{x+5} - 3$$



Sketch the graph of a polynomial with:

3 real roots, (1 double)
and a positive leading
coefficient



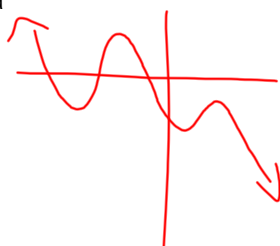
Sketch the graph of a polynomial with:

3 real roots, (1 double)
and a negative leading
coefficient



Sketch the graph of a polynomial with:

5 roots, (3 real) and a
negative leading
coefficient



Write an equation with
the following roots: 3, 5

$\sqrt{\quad}$

$$f = \{(1,2) (2,4) (5, 10)\}$$

$$g = \{(2,2) (3,5) (10,6)\}$$

$$[f \circ g] =$$

$$[g \circ f] =$$